

Space-Qualifiable Cyanate Ester Elastomer, Phase I

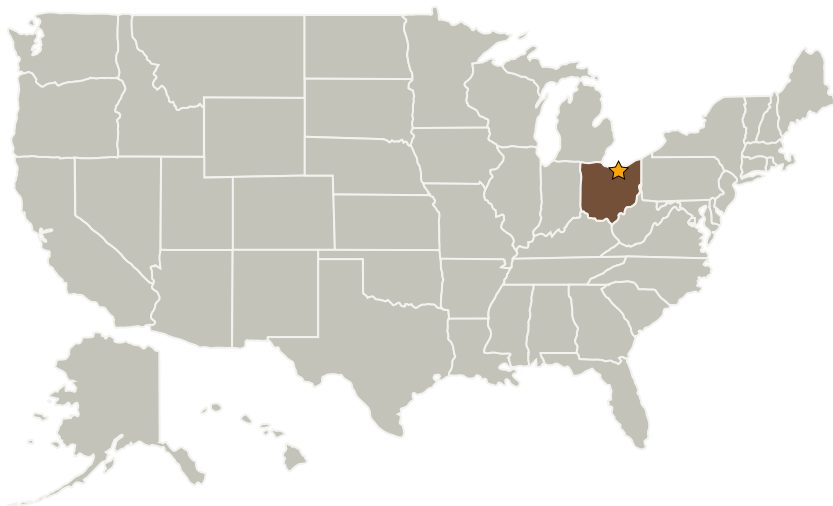
Completed Technology Project (2007 - 2007)



Project Introduction

Cornerstone Research Group, Inc. (CRG) proposes to design and develop a space-qualifiable cyanate ester elastomer for application in self-deployable space structures and future aircraft systems. Having already demonstrated the feasibility of the current cyanate ester shape memory polymer (SMP) as a space-qualifiable material, CRG proposes to refine its existing cyanate ester SMP to provide the flexibility necessary for self-deployable space structures. Working extensively on deployable structure systems for NASA and DoD projects (see section 5.2), CRG has demonstrated the feasibility of self-deploying structures by using surrogate styrene-based systems. CRG now proposes to develop new cyanate ester resins, incorporating the siloxane moiety in the monomer or polymer network, to provide NASA with a material combining the flexibility of siloxanes with CRG's space-qualifiable cyanate ester SMP. CRG's work with DoD and commercial aerospace customers has also helped to identify the proposed material as a durable, lightweight alternative to current state-of-the-art aircraft systems. CRG's innovative approach to the development of space-qualifiable cyanate ester elastomer will provide NASA with a low-cost, space-durable, and flexible material for application in self-deployable space structures and future aircraft systems.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Cornerstone Research Group, Inc.	Supporting Organization	Industry	Miamisburg, Ohio

Primary U.S. Work Locations

Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
 - └ TX12.1 Materials
 - └ TX12.1.6 Materials for Electrical Power Generation, Energy Storage, Power Distribution and Electrical Machines